

A new species of small *Barbus* (Pisces, Cyprinidae) from Tanzania, East Africa.

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A collection of *Barbus* made by the author in northern Tanzania belongs to the group characterized by radiately striated scales and a thin, flexible last unbranched dorsal fin ray. It is described here as a new species.

Barbus venustus sp.nov.

(Fig. 1)

HOLOTYPE. A male fish, 29.0 mm SL from Nyumba ya Mungu reservoir situated at 3°45'S, 37°25'E at an altitude of 670 m on the upper Pangani river, Tanzania, BM (NH) 1979.10.3:1.

PARATYPES. Nineteen fishes from Nyumba ya Mungu reservoir and its affluent streams, BM(NH) 1979.10.3:2-20.

DESCRIPTION. Based on 20 fishes, 19.6-30.2 mm SL.

Body moderately compressed, its depth equal to or, in mature females, a little greater than the length of the head. Predorsal profile convex with a slight nuchal hump. Snout rounded, shorter than the eye diameter which is slightly less than or equal to the interorbital width. Mouth moderate and subterminal. Anterior barbel short, posterior barbel longer, extending as far as the vertical to the mid-point of the pupil of the eye. Well developed sunken pit-lines are present on the cheek and operculum and, less distinctly, on the dorsal surface of the head. There may be as many as 12 lines between the preoperculum and the anterior orbital margin, some branching ventrally. In any line the pits are separated from each other and their mouths may rise above the level of the surrounding skin. Sharply pointed conical tubercles or spinules are developed on the snout and lower jaw of males. The caudal peduncle is relatively slender, its depth 1.36-1.76 (mean 1.56) in its length.

In alizarin stained preparations of two fishes, 26.0 and 27.8 mm SL, the post Weberian vertebral count is 27. The pharyngeal bones and teeth (Fig. 2) are similar in appearance in both specimens. The teeth number 2.3.5-5.3.2 and have recurved crowns.

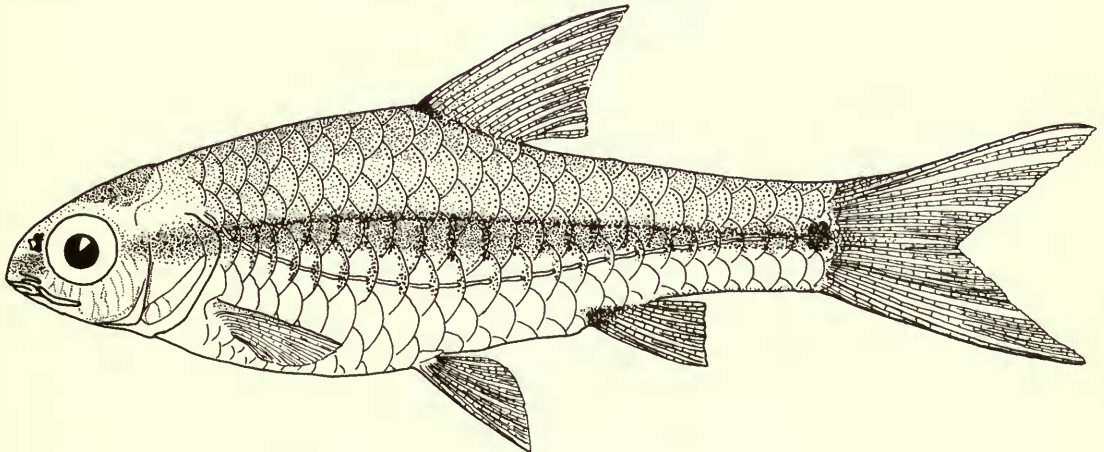


Fig. 1 A paratype of *Barbus venustus*, 27.6 mm SL.

Summary of morphometric data for 20 fishes, 19.6–30.2 mm SL; measurements are expressed as percentages of SL.

	range	mean	standard deviation
Maximum depth	28.4–32.4	30.4	1.1
Length of head	27.9–30.4	29.0	0.7
Length of snout	6.3–8.3	7.4	0.6
Horizontal diameter of eye	9.2–11.0	10.2	0.5
Least bony interorbital width	8.3–10.2	9.3	0.5
Length of anterior barbel	0.9–3.0	1.9	0.7
Length of posterior barbel	3.3–5.9	4.3	0.7
Length of longest dorsal fin ray	24.8–28.2	26.9	1.0
Greatest length of pectoral fin	18.8–22.8	20.9	1.1
Distance from snout tip to dorsal fin origin	52.4–56.7	54.2	1.2
Length of caudal peduncle	18.2–21.8	20.1	1.0
Least depth of caudal peduncle	11.9–13.8	12.9	0.6

SCALES. Scales have radiate striae, (Fig. 3). Lateral line complete, with 22 (f.1), 23 (f.7), 24 (f.6) or 25 (f.6) pore-bearing scales; its course dips ventrally on the flanks and returns to a midlateral position on the caudal peduncle. There are $4\frac{1}{2}$ (f.14) or 5 (f.6) scales between the dorsal fin origin and the lateral line and $1\frac{1}{2}$ (f.4) or 2 (f.16) scales between the lateral line and pelvic insertion. Eight (f.3), 9 (f.11) or 10 (f.6) scales encircle the least circumference of the caudal peduncle and 9 (f.15) or 10 (f.5) are found in the pre-dorsal fin row.

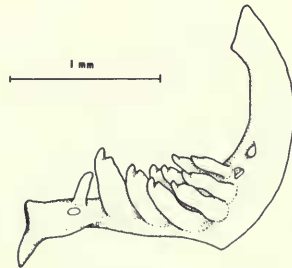


Fig. 2 A lateral view of the right pharyngeal bone from a fish 27.8 mm SL.

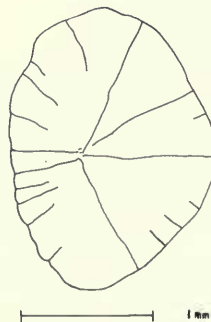


Fig. 3 Striations on a flank scale from above the lateral line.

FINS. The origin of the dorsal fin is on or slightly in advance of the perpendicular to the pelvic fin insertion. It has III/7 (f.7) or III/8 (f.13) rays, and the third unbranched ray is

unossified and flexible. The anal fin has III/5 rays. In both fins the last branched ray is typically divided to its base. The pectoral fin does not reach the base of the pelvic fin.

COLORATION. In the preserved fishes, fixed in formalin, the dorsal surface of the head and body are brownish. Scales on the upper flanks and caudal peduncle are outlined in a reticulum of tiny spots and those of the lateral line series are intensely pigmented above and below the pores. A dark midlateral stripe of varying intensity runs from the tip of the snout to the base of the caudal fin. There is a small, rounded black spot at the base of the caudal fin and patches of pigment about the origin of the dorsal and, more distinctly, on the base of the anal fin.

In life, the upper flanks, caudal peduncle and caudal fin are orange-red in colour.

ETYMOLOGY. The specific name is derived from the latin for pretty, and alludes to the attractive appearance of this small fish in life.

DIAGNOSIS AND AFFINITIES. *Barbus venustus* belongs to the group of African *Barbus* characterized by radiately striated scales and a thin and flexible last unbranched dorsal fin ray. It is separable from 12 other species in this group recorded in East Africa by its possession of a combination of the following features:-

- small adult size (20–30 mm SL),
- well developed pit-lines on the head,
- two pairs of short barbels,
- relatively large scales (22–25 in the lateral line, 8–10 around the caudal peduncle),
- a complete series of lateral line pore scales, and
- a dark midlateral stripe extending from the snout tip to the base of the caudal fin where it terminates in a prominent spot.

Cephalic pit-lines have been reported in three other species present in East Africa. Two of these, *Barbus radiatus* Peters (a widely distributed polytypic species, Stewart 1977) and *B. profundus* Greenwood (Lake Victoria), are placed in the subgenus *Enteromius* (formerly *Beirabarus*, see Greenwood 1970) on the basis of the form and arrangement of the pits. In this subgenus they are small, numerous and tightly packed in raised lines or ridges, (Greenwood, 1962). The pit-lines in *B. venustus* are well developed but from a comparison with those in *B. radiatus* from Tanzanian localities, they clearly differ from the *Enteromius* type being sunken, with rows of relatively large, discrete pits. This condition conforms more closely to that in *B. cercops* Whitehead (Lake Victoria basin), except that only 5 or 6 lines are visible on the cheek in this species compared with up to 12 in *B. venustus*. *Barbus cercops* also differs from the new species in coloration and the possession of two pairs of long barbels (equal to or longer than the eye) and smaller scales (29–32 in the lateral line series; 12 around the caudal peduncle).

Whitehead (1960) considered that the nearest relatives of *B. cercops* were to be found in western Africa and Greenwood (1962) suggests the possibility of a phyletic significance in the fact that, of 14 species of small *Barbus* he examined with pit-lines of the non-*Enteromius* type, all except *B. cercops* were essentially West African in distribution. Subsequently Hopson A. J. & J. (1965) added a further 11 species with weakly developed pit-lines to Greenwood's list: all are from the Volta region. However, Poll & Lambert (1961), Poll & Gosse (1963) and Poll (1976) have found small *Barbus* with pit-lines of this sort in localities in the north-east, central and south-eastern parts of the Zaire basin. Moreover Tweddle collecting in Malawi (personal communication) has noted pit-lines in several as yet unidentified *Barbus* species and I have observed 5 or 6 weak pit-lines on the cheek in type material of *B. barnardi* Jubb, (AM.P1055, 1056–1062) from the Zambezi river system. It is possible therefore that pit-lines have been overlooked in small *Barbus* from other parts of Africa. As Greenwood (1962) comments, preservation undoubtedly affects the ease with which pits and pit-lines may be seen.

Within the group defined above, the affinities of *B. venustus* are unknown. Although clearly separable in body shape, the depth of the lateral line scales and coloration, the

distribution of the pit-lines in *B. schoutedeni* Poll & Lambert (River Dungu, Zaire) appears to be very close to their condition in *B. venustus*. *Barbus pygmaeus* Poll & Gosse (Central Zaire basin) shares with *B. venustus* a small adult size (<20 mm SL), large scales and a midlateral stripe, but there are only 4 pit-lines beneath the eye and it has a deeper body, longer barbels (about equal to or longer than the eye) and higher dorsal and anal fin ray counts (III/9 and III/6, respectively).

DISTRIBUTION. *Barbus venustus* is known only from the type localities.

BIOLOGY. *Barbus venustus* in the reservoir, was caught in shallow water among open stands of the emergent grass *Paspalidium geminatum*. The sample was obtained in July and August at the onset of the dry season but with the lake level still close to its maximum.

Cladocerans, insect fragments (including mayfly nymphs and chironomid midge larvae), plant material and fine sand were recorded in the guts of dissected fish. Most specimens of both sexes in the sample were sexually mature. The number of eggs, <0.8 mm diameter, carried by two ripe females, (27.6 and 30.2 mm SL) were 190 and 170, respectively.

Acknowledgement

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